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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,785	02/18/2004	Kun-Hak Lee	P56961	9835

7590 07/16/2008

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EXAMINER	
PASIA, REDENTOR M	

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
07/16/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/779,785	LEE, KUN-HAK	
	Examiner	Art Unit	
	REDENTOR M. PASIA	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on October 12, 2007 has been entered. Claims 1, 6 and 11 have been amended. No claims have been canceled. No claims have been added. Claims 1-15 are still pending in this application, with claims 1, 6 and 11 being independent.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 11-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "the Digital Subscriber Line Access Multiplexer" in lines 3-4. It is unclear where the Digital Subscriber Line Access Multiplexer refers to. In the rejection of the claims, "the Digital Subscriber Line Access Multiplexer" has been interpreted by the Examiner as being the same as "the second unit" in line 24. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-3, 6-8 and 11-13 rejected under 35 U.S.C. 103(a) as being unpatentable over Norrell et al. (US 7,194,023 B2; hereinafter Norrell) in view of Hansen (US 2004/0086096 A1; hereinafter Hansen).

As to claim 1, Norrell shows a system (Figures 2-6, system 200) for extending a distance of x Digital Subscriber Line using a telephone line (Figures 2-5, Loop Extender 224, 226, 228, 230; col. 3, lines 58-62; a loop extender 224, also called a DSL repeater, is coupled to local loop 214 to amplify DSL signals, such as ADSL or VDSL signals, passing over local loop 214 between central office 202 and customer premises 204. Col. 1, lines 39-41 shows that ADSL systems utilize telephone wires.), comprising:

a Customer-Provided Equipment (Figures 2-5, Customer Premises 204, 206, 208, 210) for supplying an x Digital Subscriber Line transmission service to a subscriber terminal (Figures 2-5; col. 3, lines 53-57; central office 202 and each of customer premises 204, 206, 208, and 210 includes a DSL termination device, such as a DSL modem, for transmitting and receiving DSL signals over an associated local loop.);

a Digital Subscriber Line Access Multiplexer (Figure 6, DSLAM 604) setting an initial link with the Customer-Provided Equipment for an x Digital Subscriber Line transmission

service (col. 8, lines 37-57, shows that DSLAM controller 616 controls the operation of the local loops via ATU-C 614 and communicates with processor 610; col. 8, lines 4-7 shows processor 610 selects a loop extender (along with the lines related to that loop extender). It is noted that when processor 610 selects the loop extender, this action is relayed to the DSLAM controller since the DSLAM controller controls the operation of the local loops where the line extenders are utilized), and transceiving data with the Customer-Provided Equipment through the set link (col. 7, lines 52-55; a Digital Subscriber Line Access Multiplexer (DSLAM) 604 to transmit DSL signals onto local loops 214, 216, 218, and 220 and receive DSL signals from local loops 214, 216, 218, and 220); and

a distance extension module (Figures 2-5, Loop Extender 224, 226, 228, 230) being installed with at least one module between the Digital Subscriber Line Access Multiplexer (Figure 2 shows the multiple loop extenders are installed between the central office (which contains the DSLAM as shown in Figure 6) and the customer premises) and the Customer-Provided Equipment (Figures 2-5, Customer Premises), in order to receive x Digital Subscriber Line transmission data (col. 3, line 59 to col. 4, line 11; a loop extender 224, also called a DSL repeater, is coupled to local loop 214 to amplify DSL signals, such as ADSL or VDSL signals, passing over local loop 214 between central office 202 and customer premises 204.) from the Digital Subscriber Line Access Multiplexer in connection with a telephone line incoming from the Digital Subscriber Line Access Multiplexer (Figures 2-6), and after separating the received transmission data, to transmit the separated transmission data to the Customer-Provided Equipment, or to transmit transmission data received from the module of the back end or the Customer-Provided Equipment (Figure 2 and 6; col. 4, lines 12-40; illustrates that multiple loop

extenders may be coupled in series, or in cascaded fashion, to a single loop for amplifying transmitted DSL signals multiple times and in multiple locations between a customer premises and central office 202 to permit DSL signals to be transmitted over greater distances while still maintaining an acceptable DSL signal amplitude; loop extender 229 amplifies the transmitted downstream signal from the central office to the customer premises and also amplifies the transmitted upstream signal from the customer premises to the central office. It is noted that as shown in Figure 2 and 6 that DSL signals are separated by DSLAM in order to transmit the DSL signals to multiple locations.). However, Norrell does not show a reserved telephone line and an optional reserved telephone line selected from telephone line bundles.

Hansen shows a reserved telephone line and an optional reserved telephone line selected from telephone line bundles (Figure 3, Par. 0021: detects the presence of a telephone signal on one or more of the connected telephone lines and automatically couples itself to the telephone line (unused) other than the one or more telephone lines where a telephone network signal was detected; Par. 0016, 0018). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify system of Norrell to utilize the automatic detection/coupling of unused lines of Hansen in the local loops connecting to the central office and customer premises of Norrell as discussed above in order to prevent locally generated telephony signals from interfering with the signal provided by the local telephone service provider (Par. 0005).

As to claim 2, modified Norrell shows that wherein each distance extension module (Norrell: Figures 2-5, Loop Extenders), comprising:

a Customer-Provided Equipment module (Norrell: Figures 2-5; Hybrid coupler 322) receiving x Digital Subscriber Line transmission data from the Digital Subscriber Line Access Multiplexer (Norrell: col. 5, lines 20-27; hybrid coupler 322 receives downstream DSL signals from central office 202 along local loop 214 and outputs the downstream DSL signals to downstream filter 302 along a line 332.) by being connected to each of reserved telephone lines among telephone line bundles (Hansen: Figure 3, Par. 0021, 0016, 0018) incoming from the Digital Subscriber Line Access Multiplexer (Norrell: Figures 2-6; It is shown that each loop extender is has the hybrid coupler which is connected to the DSLAM which is shown to be a part of the central office), and transmitting optional x Digital Subscriber Line transmission data to the Digital Subscriber Line Access Multiplexer (Norrell: Figures 2-5; col. 5, lines 20-27; hybrid coupler 322 receives downstream DSL signals from central office 202 along local loop 214 and outputs the downstream DSL signals to downstream filter 302 along a line 332. Hybrid coupler 322 also receives amplified upstream DSL signals from upstream amplifying element 314 along a line 334 and transmits the upstream DSL signals onto local loop 214 for transmission to central office 202);

a Central Office module (Norrell: Figures 2-5; Hybrid Coupler 324) transmitting transmission data received from the distance extension module of the back end (Norrell: Figure 2, Loop Extenders 228-229; col. 5, lines 28-35; hybrid coupler 324 receives upstream DSL signals from customer premises 204 along local loop 214 and outputs the upstream DSL signals to upstream filter 312 along a line 342. It is noted that hybrid couple 324 is present in each loop extender and given the configuration of loop extenders 228 and 229, the hybrid coupler 324 of loop extender 229 transmits downstream traffic that was transmitted by loop extender 228); and

a controller (Norrell: Figure 5; DCU 502 containing VF Modem 510, DCP 512, AMADC 514) setting an initial link between the Customer-Provided Equipment module and the Digital Subscriber Line Access Multiplexer and the Customer-Provided Equipment (Norrell: Figures 2-5; col. 7, lines 22-33; DCP 512 controls the state of switches 506 by activating and deactivating bypass relay 504. It is noted that by activating the bypass relay 504, the DCP (part of DCU 502), sets up the links connecting the loop extender (which contains hybrid coupler 322 -- claimed Customer-Provided Equipment module) and the central office (which contains the DSLAM), transmitting set link information to the Digital Subscriber Line Access Multiplexer (Norrell: col. 7, lines 3-21; col. 9, lines 4-32 shows the COC 602 may place a loop extender in signal measuring mode and extracts loop extenders performance data from the DSL signals sampled at diagnostic points 1-6. It is noted that the loop extender is part of the communication path from the central office, and with this reasoning, diagnostic/performance data gathered from the loop extender can be regarded as the link information), and relaying the transmission data between the Customer-Provided Equipment module and the Central Office module (Norrell: Figures 2-5; col. 7, lines 22-33; DCP 512 controls the state of switches 506 by activating and deactivating bypass relay 504; col. 5, lines 20-35. It is noted that by controlling the state of the switches, the DCP also allows (relays) or blocks DSL signal transmissions.).

As to claim 3, modified Norrell shows that the Digital Subscriber Line Access Multiplexer includes a controller (Norrell: Figure 6, DSLAM controller 616) for setting the initial link with the neighboring distance extension modules (col. 8, lines 37-57, shows that DSLAM controller 616 controls the operation of the local loops via ATU-C 614 and communicates with processor 610; col. 8, lines 4-7 shows processor 610 selects a loop extender

(along with the lines related to that loop extender). It is noted that when processor 610 selects the loop extender, this action is relayed to the DSLAM controller since the DSLAM controller controls the operation of the local loops where the line extenders are utilized),

receiving the link information set between the distance extension module and the Customer-Provided Equipment (Norrell: col. 7, lines 3-21; col. 9, lines 4-32 shows the COC 602 may place a loop extender in signal measuring mode and extracts loop extenders performance data from the DSL signals sampled at diagnostic points 1-6. It is noted that the loop extender is part of the communication path from the central office, and with this reasoning, diagnostic/performance data gathered from the loop extender can be regarded as the link information), and

setting a link to the Customer-Provided Equipment (Norrell: Figure 2 and 6; col. 8, lines 37-56; col. 8, lines 37-57, shows that DSLAM controller 616 controls the operation of the local loops via ATU-C 614 and communicates with processor 610; col. 8, lines 4-7 shows processor 610 selects a loop extender (along with the lines related to that loop extender). It is noted that when processor 610 selects the loop extender, this action is relayed to the DSLAM controller since the DSLAM controller controls the operation of the local loops where the line extenders are utilized.).

As to claim 6, this claim is rejected using the same reasoning set forth in the rejection of claim 1. The system shown in the rejection of claim 1 performs the method claimed in claim 6.

As to claims 7 and 8, these claims are rejected using the same reasoning set forth in the rejection of claims 2 and 3, respectively.

As to claim 11, Norrell shows a system (Figure 2-6, system 200) for extending a distance of x Digital Subscriber Line using a telephone line (Figures 2-5, Loop Extender 224, 226, 228, 230; col. 3, lines 58-62; a loop extender 224, also called a DSL repeater, is coupled to local loop 214 to amplify DSL signals, such as ADSL or VDSL signals, passing over local loop 214 between central office 202 and customer premises 204. Col. 1, lines 39-41 shows that ADSL systems utilize telephone wires.), comprising:

a first unit (Figures 2-5, Customer Premises 204, 206, 208, 210) supplying an x Digital Subscriber Line transmission service to a subscriber terminal (Figures 2-5; col. 3, lines 53-57; central office 202 and each of customer premises 204, 206, 208, and 210 includes a DSL termination device, such as a DSL modem, for transmitting and receiving DSL signals over an associated local loop.);

a second unit Figure 6, DSLAM 604) setting an initial link with the first unit for an x Digital Subscribe Line transmission service (col. 8, lines 37-57, shows that DSLAM controller 616 controls the operation of the local loops via ATU-C 614 and communicates with processor 610; col. 8, lines 4-7 shows processor 610 selects a loop extender (along with the lines related to that loop extender). It is noted that when processor 610 selects the loop extender, this action is relayed to the DSLAM controller since the DSLAM controller controls the operation of the local loops where the line extenders are utilized), and transceiving data with the first unit through the set link (col. 7, lines 52-55; a Digital Subscriber Line Access Multiplexer (DSLAM) 604 to transmit DSL signals onto local loops 214, 216, 218, and 220 and receive DSL signals from local loops 214, 216, 218, and 220); and

a third unit (Figures 2-5, Loop Extender 224, 226, 228, 230) being installed with at least one module between the Digital Subscriber Line Access Multiplexer (Figures 2-5, Loop Extender 224, 226, 228, 230) and the first unit (Figures 2-5, Customer Premises), in order to receive x Digital Subscriber Line transmission data (col. 3, line 59 to col. 4, line 11; a loop extender 224, also called a DSL repeater, is coupled to local loop 214 to amplify DSL signals, such as ADSL or VDSL signals, passing over local loop 214 between central office 202 and customer premises 204.) from the second unit in connection with a telephone line incoming from the second unit (Figures 2-6), and after separating the received transmission data, to transmit the separated transmission data to the Customer-Provided Equipment, or to transmit transmission data received from the module of the back end or first unit (Figure 2 and 6; col. 4, lines 12-40; illustrates that multiple loop extenders may be coupled in series, or in cascaded fashion, to a single loop for amplifying transmitted DSL signals multiple times and in multiple locations between a customer premises and central office 202 to permit DSL signals to be transmitted over greater distances while still maintaining an acceptable DSL signal amplitude; loop extender 229 amplifies the transmitted downstream signal from the central office to the customer premises and also amplifies the transmitted upstream signal from the customer premises to the central office. It is noted that as shown in Figure 2 and 6 that DSL signals are separated by DSLAM in order to transmit the DSL signals to multiple locations.). However, Norrell does not show a reserved telephone line and an optional reserved telephone line selected from telephone line bundles.

Hansen shows a reserved telephone line and an optional reserved telephone line selected from telephone line bundles (Figure 3, Par. 0021: detects the presence of a telephone signal on one or more of the connected telephone lines and automatically couples itself to the telephone

line (unused) other than the one or more telephone lines where a telephone network signal was detected; Par. 0016, 0018). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify system of Norrell to utilize the automatic detection/coupling of unused lines of Hansen in the local loops connecting to the central office and customer premises of Norrell as discussed above in order to prevent locally generated telephony signals from interfering with the signal provided by the local telephone service provider (Par. 0005).

As to claims 12 and 13, these claims are rejected using the same reasoning presented in the rejection of claims 2 and 3, respectively.

7. Claims 4-5, 9-10 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norrell et al. (US 7194023 B2; hereinafter Norrell) in view of Hansen (US 2004/0086096 A1; hereinafter Hansen) in further view of Czerwiec et al. (US 7023875 B2; hereinafter Czerwiec).

As to claim 4, modified Norrell shows that the distance extension module uses reserved telephone lines (Hansen: Figure 3, Par. 0021, 0016, 0018). However, modified Norrell does not explicitly show the reserved telephone lines installed in a home distributor or a terminal box.

Czerwiec shows that the reserved telephone lines installed in a home distributor or a terminal box (Figure 2; col. 11, lines 36-52; the Network Interface Device (NID) can be an enclosure box mounted on the wall of a house. It is noted that line 70 is installed in the NID.). It would have been obvious to one of ordinary skilled in the art at the time of the invention to further modify the system of modified Norrell to connect the reserved telephone lines of

modified Norrell into the NID of Czerwiec as shown above in order to provide high-speed services to ordinary residences on digital subscriber lines (col. 1, lines 13-15).

As to claim 5, further modified Norrell shows that the terminal box (Czerwiec: Figure 2; col. 11, lines 36-52, NID) uses reserved telephone lines (Hansen: Figure 3, Par. 0021, 0016, 0018) including a Customer-Provided Equipment distribution module for connecting with a home telephone network (Czerwiec: Figure 2; col. 11, lines 36-52; The NID can be an enclosure (box) for mounting on the wall of a house. It is noted that the NID provides connection between the external lines to the home telephone network.) by being connected to a main line of telephone line bundles from the distance extension module of the front end (Norrell: Figures 2-5).

As to claims 9 and 14, these claims are rejected using the same reasoning set forth in the rejection of claim 4.

As to claims 10 and 15, these claims are rejected using the same reasoning set forth in the rejection of claim 5.

Response to Arguments

8. Applicant's arguments with respect to claim(s) 1-3, 6-8, and 11-13 under Kerkhof (US 2006/0209864 A1) and rejection(s) of claims 4, 5, 9, 10, 14 and 15 under Kerkhof (US 2006/0209864 A1) in view of Witty et al. (US 6782097 B2) have been considered but are moot in view of the new ground(s) of rejection as shown below:

- Claims 1-3, 6-8 and 11-13 rejected under 35 U.S.C. 103(a) as being unpatentable over Norrell et al. (US 7,194,023 B2; hereinafter Norrell) in view of Hansen (US 2004/0086096 A1; hereinafter Hansen).
- Claims 4-5, 9-10 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norrell et al. (US 7194023 B2; hereinafter Norrell) in view of Hansen (US 2004/0086096 A1; hereinafter Hansen) in further view of Czerwiec et al. (US 7023875 B2; hereinafter Czerwiec)

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to REDENTOR M. PASIA whose telephone number is (571)272-9745. The examiner can normally be reached on M-F 7:30am to 4:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung Moe can be reached on (571)272-7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Redentor M Pasia/
Examiner, Art Unit 2616

AUNG S. MOE
SUPERVISORY PATENT EXAMINER